

A REVIEW OF THE MARINE NEMATODE GENERA
PLATYCOMA AND *PROPLATYCOMA*, WITH A
DESCRIPTION OF *PROPLATYCOMA FLEURDELIS*
(ENOPLIDA: LEPTOSOMATIDAE)

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Abstract. — The taxonomic histories of the genera *Platycoma* Cobb, 1894 and *Proplatycoma* Platonova, 1976 are reviewed. *Proplatycoma fleurdelis*, n. sp. from Barbados West Indies, is described, and it is the first record of this genus in the western North Atlantic. The structure of the buccal capsule, amphidial flaps, spicula and gubernacula are discussed, and the genera *Proplatycoma* and *Platycoma* are redefined. An artificial key to the males of the species of *Platycoma* and *Proplatycoma* is provided.

The genus *Platycoma* was proposed by Cobb (1894:399) to receive a single new species, *P. cephalata* and named for the "Two flat hairs of unequal length that grow from the inner margin of the anterior border of each . . ." amphid of the males (Cobb 1894:400). Platonova (1976:138) and Platt & Warwick (1983:178) have identified these structures as setae. *Platycoma africana* (Gerlach, 1959) Gerlach, 1962, *P. curiosa* (Gerlach, 1955) Gerlach, 1962, and *P. sudafricana* Inglis, 1966 were subsequently added to the genus. Males of species whose descriptions were subsequent to those of the type species lack the pair of "hairs" or "setae" emerging from each amphid, but all possess what is presumed to be a modification of this character. The amphid in males of *P. africana* is covered by a flap that is broad at its posterior end and tapered anteriorly to a blunt, central point. The amphidial flap in males of *P. curiosa* and *P. sudafricana* is tapered to form a central, anteriorly directed lobe, and each has a dorsal and ventral lobe as well. The dorsal and ventral lobes in *P. curiosa* are highly branched, whereas in *P. sudafricana* they are not branched, but sloped posteriorly, giving the flap the appearance of an arrowhead.

Platonova (1976:139) proposed the genus *Proplatycoma* to which she transferred *P. curiosa*, *P. africana*, and *P. sudafricana*, with the latter designated as the type species. In the diagnosis of *Proplatycoma*, Platonova (1976:139) states that the amphids of the males are elongated anteriorly, sometimes with unique processes, and that cuticular, labial outgrowths are absent around the buccal aperture. Although Platonova (1976:138) did not give a formal diagnosis for *Platycoma*, it is stated in her key to the genera of Platycominae that there are two flat setae situated near each amphid, and cuticular, labial outgrowths are present. Platonova (1976:137) also proposed a new subfamily, Platycominae, for the genera *Platycoma*, *Proplatycoma*, *Platycomopsis* and *Pilosinema*.

A collection of marine nematodes from Barbados, West Indies, deposited at the National Museum of Natural History, Smithsonian Institution (USNM), contains two males, three females and three juveniles of *Proplatycoma fleurdelis*, n. sp. These specimens most closely resemble those of *P. sudafricana*, known only from males. The syntypes of *P. sudafricana* were studied for the purpose of making a comparison between members of the two species. The morpho-

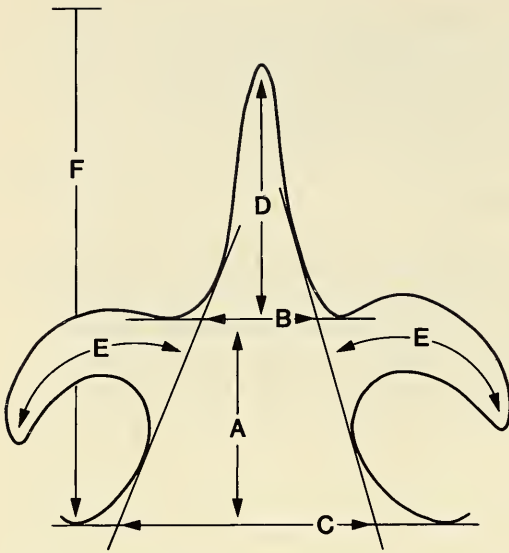


Fig. 1. Diagram showing location of measurements of amphidial flap of *Proplatycoma fleurdelis*: A, Length of flap; B, Minimum (anterior) width of flap; C, Maximum (posterior) width of flap; D, Length of anterior lobe; E, Length of dorsal and ventral lobes; F, Distance from oral surface of head to posterior margin of flap.

metric and meristic data for *P. sudafricana* presented in the discussion of *P. fleurdelis* are from original observations.

These specimens provided an opportunity to make detailed observations on the structure of the amphidial flap, the cuticular, labial outgrowths, and the spicula and gubernaculum. *Platycoma* and *Proplatycoma* are redefined on the basis of these observations.

Materials and methods.—Specimens were fixed in formalin and mounted in anhydrous glycerine between coverslips mounted on Cobb aluminum frames. Morphometric data were obtained by measuring camera lucida drawings and photographs of the specimens with a Sumagraphics Digitizing Pad. Morphometric and meristic data in the text are given first for the male holotype (USNM 77129), followed by that for the male paratype (USNM 77130). Some measurements were not possible for the male

paratype; in those cases it is stated that the data is for the holotype. Similarly, for females the data is given for USNM 77131 followed by that for USNM 77132, and for juveniles the data is given for USNM 77133, USNM 77170, and USNM 77171, in that order. Where only two items of data are given for the juveniles, it is that for USNM 77170 that has been omitted, because the position of the head of that specimen made certain measurements impossible. Measurements of the male amphid were made as shown in Fig. 1. For each set of data, the mean \pm one standard deviation is given in parentheses. Statistics are not calculated for the juveniles because the specimens are most likely at different stages of development.

After measurements were made on male specimen USNM 77130, it was removed from its slide mount, rehydrated, and freeze dried for scanning electron microscopy by a method described elsewhere (Hope 1982: 2). The specimen was precoated with carbon, coated with gold/palladium, and examined with an Hitachi S-570 SEM.

Platycoma Cobb, 1894

Platycoma Cobb, 1894:399.—Inglis, 1966: 85.—Gerlach & Riemann, 1974:482.—Platonova, 1976:137.

Type species.—*Platycoma cephalata* Cobb, 1894.

Diagnosis.—Leptosomatidae. Body slightly tapered from mid region toward each end; cuticle, at least in head region, with very fine transverse striae. Head region of males constricted at level of amphid, then cylindrical to level of cephalic sensilla; anterior end rounded, truncate or slightly concave. Head region of female uniformly tapered, without constriction. Amphid cyathiform; cuticle at posterior rim of amphidial aperture flap-like in males and extended anteriorly over amphidial aperture; each amphidial flap with 2 parallel, tapered lobes. Amphidial flap absent in females.

Oral aperture surrounded by 3 microla-

bia, each microlabium triangular in profile with apex anteriorly directed. Odontia, onchia or other forms of buccal armament absent. Anterior end of esophagus attached to cephalic cuticle; oral aperture dilated by labial retrodilator muscles in anterior end of esophagus. Subventral esophageal gland duct orifices open into buccal capsule at base of subventral microlabia. Spicula typical in structure and position, and with ventrolateral wedge- or rod-shaped accessory structure; gubernaculum with small, paired, dorsally directed apophyses.

Proplatycoma Platonova, 1976

Proplatycoma Platonova, 1976:139.

Type species.—*Proplatycoma sudafricana* (Inglis, 1966) Platonova, 1976.

Diagnosis.—Leptosomatidae. Body slightly tapered from mid region toward each end; cuticle with very fine transverse striae. Head region of males constricted at level of amphid, then cylindrical to level of cephalic sensilla; anterior end rounded to slightly concave. Head region of female uniformly tapered. Cephalic capsule present or absent. Amphid cyathiform; cuticle at posterior rim of amphidial aperture in males flap-like and extended anteriorly over amphidial aperture. Amphidial flap tapered to single, anteriorly directed point without dorsal and ventral lobes, or flap with single, central, anteriorly directed lobe and with dorsal and ventral lobes; amphidial flap absent in females.

Oral aperture surrounded by 3 microlabia, each microlabium triangular in profile with apex anteriorly directed. Odontia, onchia or other forms of buccal armament absent. Anterior end of esophagus attached to cephalic cuticle; oral aperture dilated by labial retrodilator muscles in anterior end of esophagus. Subventral esophageal gland duct orifices open into buccal capsule at base of subventral microlabia. Spicula typical in structure and position; wedge- or rod-shaped accessory structure ventrolateral to spicula;

gubernaculum with paired caudally directed apophyses. Caudal glands absent.

Proplatycoma fleurdelis, new species

Figs. 1–5

Holotype.—Male, USNM 77129.

Paratypes.—Male, USNM 77130; two females (USNM 77131 and 77132); and three juveniles (USNM 77133, 77170, and 77171).

Type locality.—Barbados, West Indies. The type specimens were collected by Dr. Bjorn Urhammer in Jan and May 1968. Unfortunately, the type specimens came from a composite sample from the top 20 cm of sediment at high- and low-water marks at Skeete's Bay, the top 10 cm of sediment at the edge of Green Pond, and from the top 20 cm of sediment at the low-water mark in Bottom Bay. Therefore, it is not possible to identify the exact location(s) from which this material was obtained.

Description.—

Males.—

	a	b	c	Body length
USNM 77129	128	6.6	52	8.135 mm
USNM 77130	142	6.9	60	9.672 mm

Body diameter uniform except near anterior and posterior ends; midbody diameter 64 and 68 (66 ± 3) μm ; body width at base of esophagus 62 μm (holotype); at level of nerve ring 55 μm (holotype); at level of cephalic sensilla 25 and 21 (23 ± 3) μm . Head region (Figs. 2A, C; 5A) constricted at level of amphid, cylindrical to level of cephalic sensilla, then rounded anteriorly from level of cephalic sensilla. Oral surface of head slightly concave to rounded.

Striae of cuticle (Fig. 2B) very shallow; periodicity of striae 400 nm. Head with 6 papilliform, inner labial sensilla (Figs. 2B; 5A). Single circle of 6 setiform, outer labial sensilla and 4 setiform cephalic sensilla (Figs. 2A; 5A), 8 μm from oral surface of head in both specimens; outer labial sensilla of holotype 20–25 (22 ± 3) μm and cephalic sen-

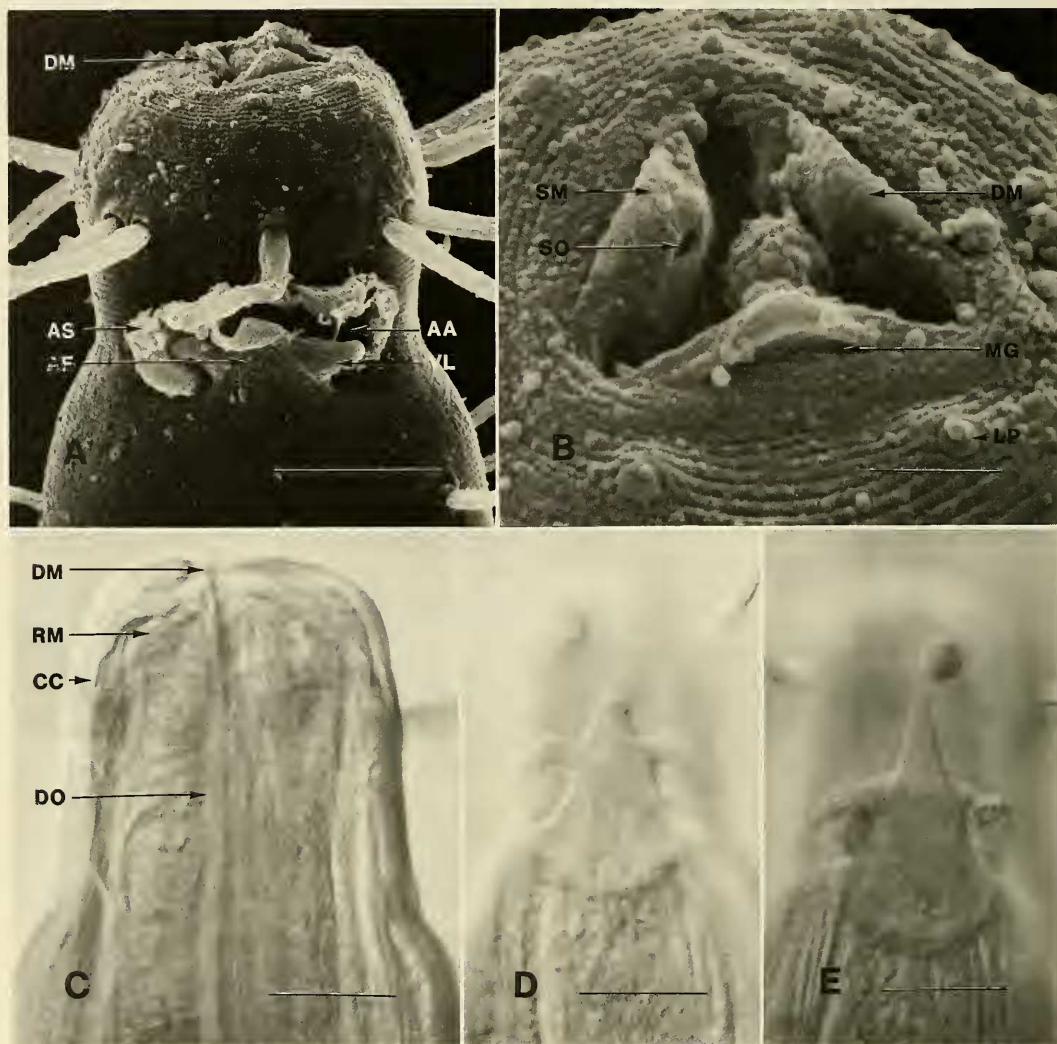


Fig. 2. *Proplatycoma fleurdelis*: A, SEM micrograph of lateral surface of head of male paratype, USNM 77130; scale equals $10\ \mu\text{m}$; B, SEM micrograph of oral surface of male paratype, USNM 77130; scale equals $3\ \mu\text{m}$; C, Photomicrograph of head of holotype male USNM 77129 in optical sagittal section; scale equals $10\ \mu\text{m}$; D, Photomicrograph of left amphidial flap of male holotype USNM 77129; scale equals $10\ \mu\text{m}$; E, Photomicrograph of right amphidial flap of holotype; scale equals $10\ \mu\text{m}$. Abbreviations.—AA, amphidial aperture; AF, amphidial flap; AS, amphidial gland secretion; CC, cephalic capsule; DM, dorsal microlabium; DO, level of dorsal esophageal gland orifice; LP, inner labial papillae; MG, microlabial groove; RM, retrodilator muscles of buccal aperture; SM, subventral microlabium; SO, subventral esophageal gland orifice; VL, ventral lobe of amphidial flap.

silla of holotype 20–22 (21 ± 1) μm long. Cervical region of holotype with 21 sensilla on right side of body, 20 on left. Length of cervical sensilla 14–19 (16 ± 2) μm . Cephalic capsule (Figs. 2C; 5A) 3 μm long on both specimens, visible only on dorsal and

ventral sides of head when head viewed in sagittal, optical section.

Cuticle at posterior rim of amphidial aperture extended anteriorly, flap-like over aperture; amphidial flap (Figs. 2A, D, E; 5A) tri-lobed and with shape of fleur-de-lis. Sur-

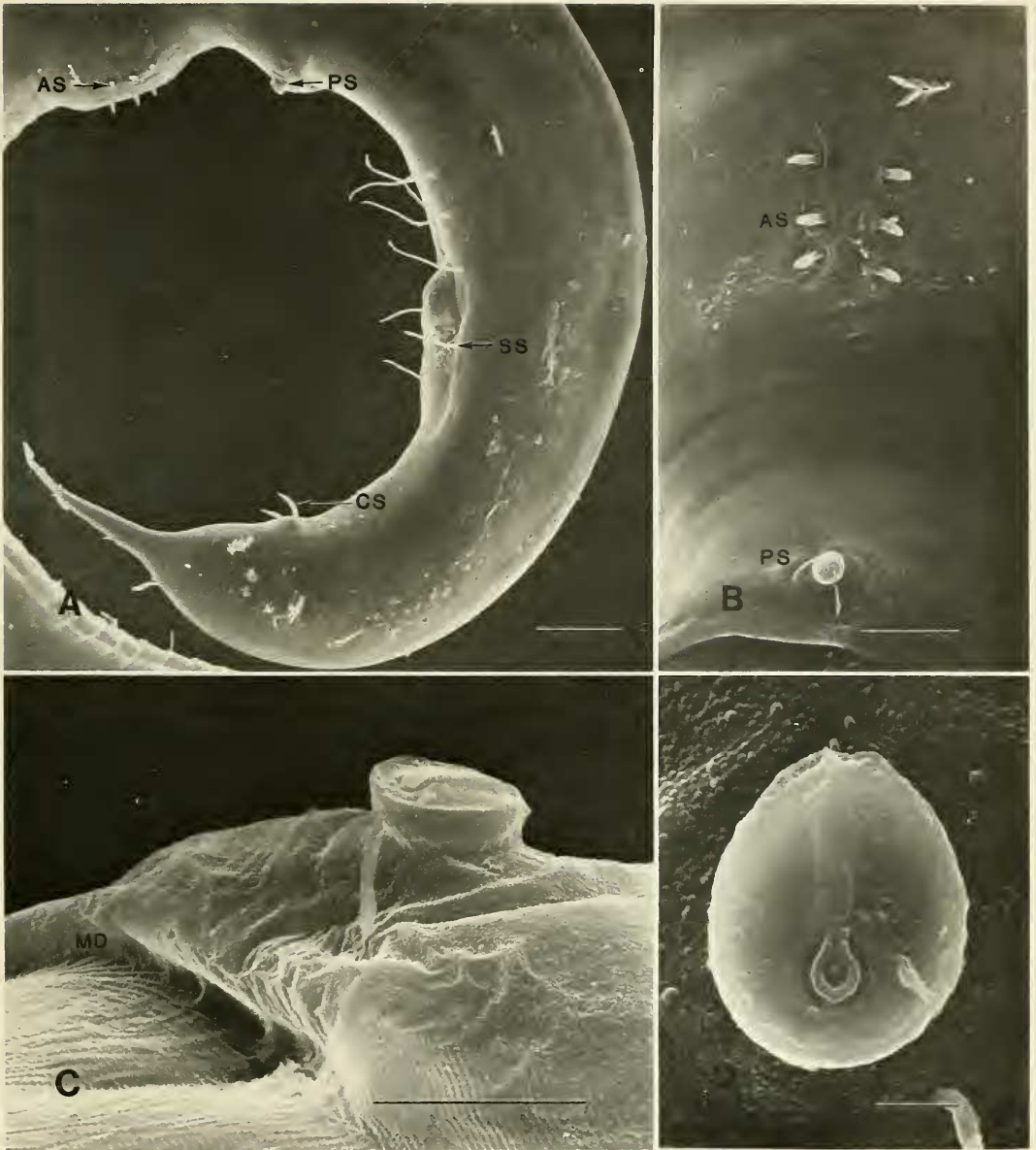


Fig. 3. *Proplatycoma fleurdelis*: A, SEM micrograph of tail of paratype male USNM 77130; scale equals 20 μm ; B, SEM micrograph of ventral, precloacal region of male paratype USNM 77130; scale equals 10 μm ; C, SEM micrograph of a postero-lateral view of the posterior ventromedian supplement of paratype USNM 77130; scale equals 5 μm ; D, Same as C, but in ventral view; scale equals 1 μm . Abbreviations.—AS, anterior ventromedian supplement; CS, subventral caudal seta; MD, depression produced by the contraction of copulatory muscles; PS, posterior ventromedian supplement; SS, subventral, setiform supplements.

face of flap striated; lobes nonstriated and more electron reflective than flap (Fig. 2A). Middle, anteriorly-directed lobe tapered to point with tip often bent outward; dorsal

and ventral lobes arched with rounded ends directed posteriorly. Right and left amphidial flaps of holotype 7 μm long; width of flap at its anterior end 4 μm on right and left

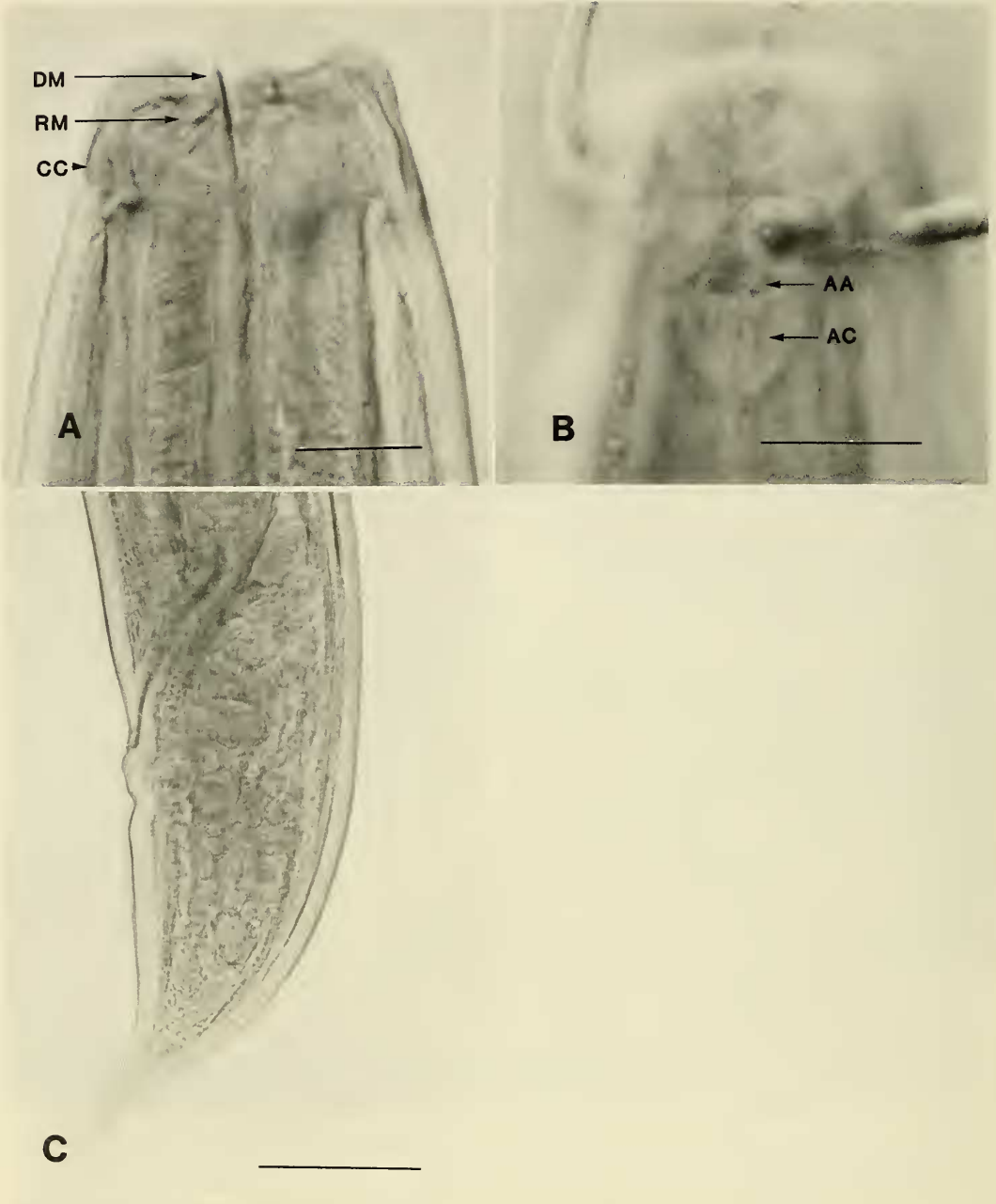


Fig. 4. *Proplatycoma fleurdelis*, photomicrographs of female paratype USNM 77131: A, Head in optical sagittal section, scale equals $10\ \mu\text{m}$; B, Right lateral surface of head; scale equals $10\ \mu\text{m}$; C, Optical sagittal section of tail; scale equals $40\ \mu\text{m}$. Abbreviations.—AA, amphidial aperture; AC, amphidial fovea; CC, cephalic capsule; DM, dorsal microlabium; RM, retrodilator muscles of the buccal aperture.

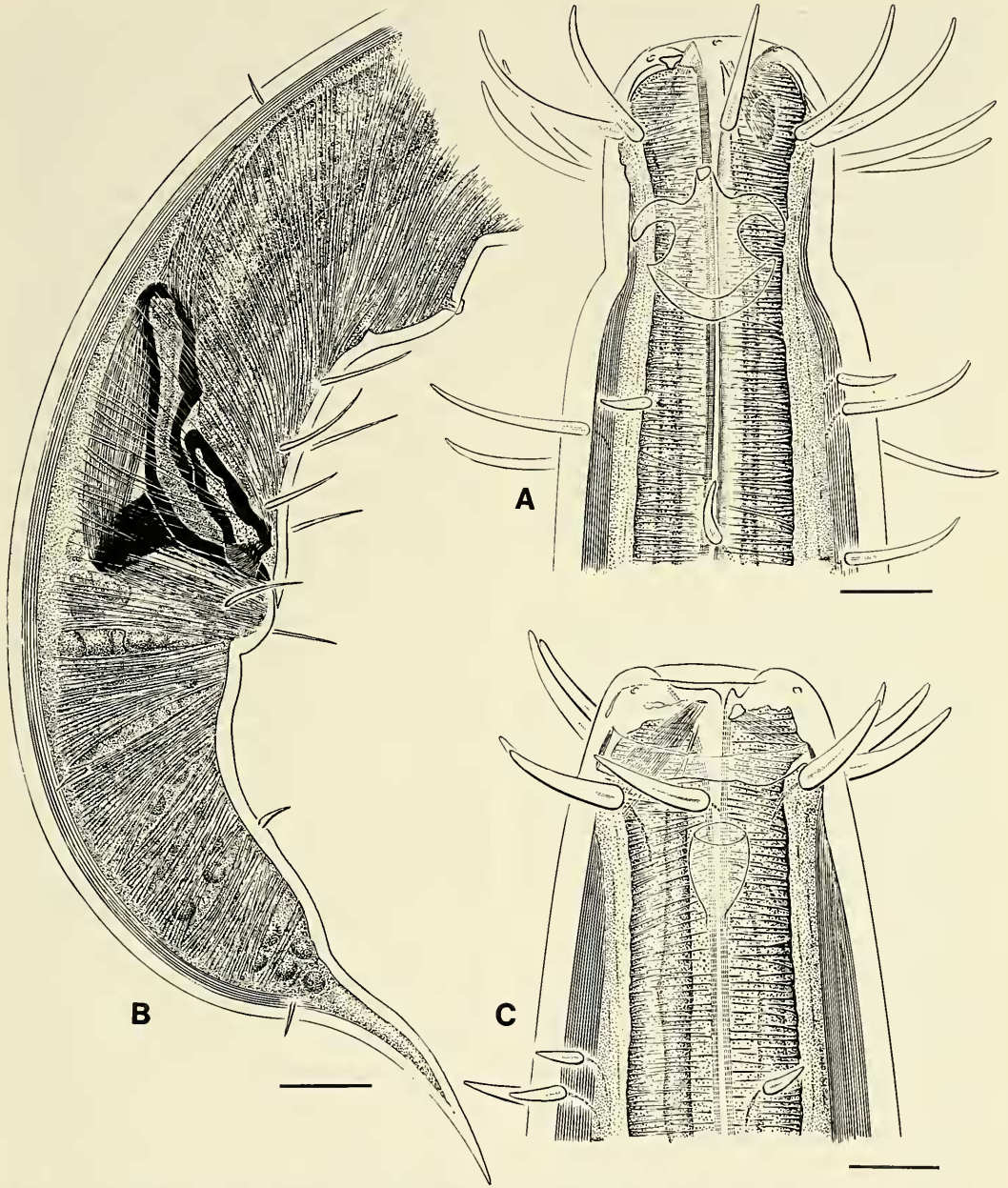


Fig. 5. *Proplatycoma fleurdelis*: A, Lateral view of head of holotype, USNM 77129; scale equals 10 μm ; B, Lateral view of tail of holotype, USNM 77129; scale equals 20 μm ; C, Lateral view of head region of female paratype, USNM 77131; scale equals 10 μm .

sides and width of flap at its posterior end 9 μm on right and left sides; anterior lobe of left flap 8 μm long; dorsal and ventral lobes of right and left amphidial flaps 7 μm

long. Distance from oral surface of head to posterior margin of right and left flaps 24 and 26 (25 ± 1) μm , respectively. Amphidial glands well developed; posterior end of

right gland of holotype 687 μm from oral surface of head.

Oral aperture (Fig. 2B) triradiate and surrounded by 3 microlabia (Figs. 2A, B, C; 5A). Microlabia triangular with apex directed anteriorly, and each set off from head by microlabial groove (Fig. 2B). Buccal capsule triradiate and dilated by 3 obliquely oriented, labial retrodilator muscles (Figs. 2C; 5A), 1 in each sector at anterior end of esophagus. Buccal armament absent. Orifice of dorsal esophageal gland (Figs. 2C; 5A) in lumen of esophagus, 18 and 20 (19 ± 1) μm posterior from oral surface. Orifices of right and left subventral esophageal glands on mesal surface of right and left microlabia, respectively (Fig. 2B). Esophagus 1240 and 1400 (1320 ± 114) μm long, cylindrical, slightly tapered anteriorly, and posteriorly crenate. Renette absent.

Somatic sensilla uncommon between level of nerve ring and near level of cloacal vent. Right lateral chord of holotype with 48 dorsolateral loxometanemes of type I with caudal filaments, and 28 without caudal filaments; in left lateral chord 58 with caudal filaments and 29 without. Hypodermal gland cells present in hypodermal chords, each gland cell opening on surface of cuticle at dorsolateral or ventrolateral margin of chord.

Testes paired and opposed, each on left of gut. Seminal vesicle highly convoluted. Ejaculatory duct enveloped with muscle cells, each cell oblique with dorsal margin anterior to ventral margin. Spicula (Fig. 5B) paired, curved ventrally; right spiculum of holotype 73 and left spiculum 76 (75 ± 2) μm long, measured on chord. Proximal end of each spiculum bluntly rounded without distinct capitulum; diameter of proximal third uniform, distal end tapered. Ventral surface of distal two-thirds of each spiculum recessed. Gubernaculum (Fig. 5B) with paired apophyses directed caudally; each apophysis keel-shaped, straight; right apophysis in holotype 18 and left 13 (16 ± 4) μm long. Wedge-shaped accessory struc-

ture (Fig. 5B) present in recessed area on ventrolateral surface of spiculum; proximal end narrow; distal end of right accessory structure in holotype 9 and distal end of left 11 (10 ± 1) μm wide and with 13 fine transverse striae on right and with 12 on left side of body. Copulatory muscles of body wall anterior to spicula (Fig. 5B) oblique and nearly in continuous sheets.

Setiform, subventral supplements (Figs. 3A; 5B) 18–24 (20 ± 2) μm long and in series of 4 and 4 on right side of body and 3 and 4 on left; anterior supplements 41 and 49 μm anterior to cloacal vent on right side of body and 35 and 36 (40 ± 6) μm on left; posterior subventral supplements approximately adanal. Posterior ventromedian supplement (Figs. 3A, B, C, D; 5B) disc-shaped and pedunculate, on raised surface of body 63 and 79 (71 ± 11) μm anterior to cloacal vent; center of disc with slightly raised, longitudinally oriented ridge (Fig. 3D); posterior end of ridge expanded and with central depression (sensory receptor?). Anterior ventromedian supplement (Fig. 3A, B) with 4 and 3 pairs of setiform sensilla, 1 member of each pair on right and left sides respectively of sagittal plane; sensilla of paratype 3–5 (4 ± 1) μm long; posterior pair 112 and 108 (111 ± 2) μm from cloacal vent, and anterior pair 127 and 118 (123 ± 6) μm from cloacal vent. Dorsolateral, lateral and ventrolateral setiform sensilla sparsely distributed precaudally to near anterior limit of copulatory muscle.

Tail 158 and 160 (159 ± 1) μm long with terminal, conical spike (Figs. 3A; 5B). Paired, stout, subventral setiform sensilla (Figs. 3A; 5B), 8 and 9 (9 ± 1) μm long, present on tail 67 and 81 (74 ± 10) μm posterior from cloacal vent, or 45 and 51 (48 ± 4)% of tail length. One subdorsal setiform sensilla present on each side of tail near base of spike; additional subdorsal caudal setiform sensilla sparse or absent. Cloacal body diameter 59 and 48 (53 ± 8) μm . Caudal glands absent.

Females. —

	a	b	c	V	Body length
USNM					
77131	133	8.5	86	63%	10.619 mm
USNM					
77132	107	8.0	60	65%	7.718 mm

Body diameter at midlength 80 and 72 (76 ± 6) μm ; at level of base of esophagus 70 and 68 (69 ± 1) μm ; at level of nerve ring 65 and 63 (64 ± 1) μm ; at level of cephalic sensilla 29 and 28 (29 ± 1) μm . Head (Figs. 4A; 5C) uniformly tapered from cephalic sensilla to oral surface, then truncate to slightly concave.

Head with 6 papilliform, inner labial sensilla (Fig. 5B). Single circle of 6 setiform, outer labial sensilla and 4 setiform, submedian, cephalic sensilla (Fig. 5C), 11 and 13 (12 ± 1) μm from oral surface. Outer labial sensilla 13–17 and 15–16 (15 ± 2) μm long, and 4 submedian cephalic sensilla 15–17 and 16–18 (17 ± 1) μm long. Cervical region with 22 and 19 (21 ± 1) sensilla on right side of neck and 20 and 17 (19 ± 2) on left. Cervical sensilla 3–14 (9 ± 4) and 4–14 (9 ± 4) μm long. Cephalic capsule 5 μm long on both specimens. Amphid (Figs. 4B; 5C) cyathiform; aperture transversely oval, 16 and 15 (16 ± 0.4) μm from oral surface; amphidial fovea 9 and 8 (9 ± 1) μm long and 7 and 6 (7 ± 0.4) μm wide.

Oral aperture triradiate and surrounded by 3 microlabia (Fig. 4A; 5C). Microlabia set off from head by microlabial grooves. Oral surface of head concave with contraction of retrodilator muscles (Figs. 4A; 5C). Buccal armature absent. Orifice of dorsal esophageal gland (Fig. 5C) 21 and 19 (20 ± 1) μm from oral surface. Orifices of subventral glands on mesal surface of subventral microlabia. Esophagus 1255 and 967 (1111 ± 204) μm long, cylindrical, slightly tapered anteriorly, and posteriorly crenate. Renette absent.

Somatic sensilla sparse. Hypodermal gland cells present in hypodermal chord, each gland cell opening on surface of cuticle at dorsolateral and ventrolateral margin of

chord. Hypodermal chord in vulvar region without specialized gland cells. Reproductive system amphidelphic and antidromous. Gonads ventral to gut; anterior ovary on left side of oviduct, posterior on right.

Tail (Fig. 4C) tapered dorsally and ventrally; length 124 and 128 (126 ± 3) μm with 1 subdorsal sensillum and 2–4 sensilla at base of caudal spine on each side of body. Anal body diameter 59 and 60 (60 ± 1) μm . Caudal glands absent.

Juveniles. —

	a	b	c	Body length
USNM				
77133	60.3	4.8	27.5	3.498 mm
USNM				
77170	92.0	5.1	31.5	5.683 mm
USNM				
77171	133.0	7.3	54.0	8.268 mm

Similar to females. Midbody diameter 58, 62, and 62 μm ; body diameter at base of esophagus 61, 61, and 62; at level of nerve ring 59, 52, and 56; at level of cephalic sensilla 20, 22, and 23 μm . Head truncate to slightly concave on oral surface. Cephalic sensilla 11–14, 12–13, and 13–17 μm long and 10 and 8 μm from oral surface of head. Amphid cyathiform; aperture transversely oval; anterior rim of aperture 13 μm from oral surface of head in each of 2 specimens; amphidial fovea longitudinally ovoid, 9 by 6 μm in each of 2 specimens. Cephalic capsule 2.5 and 3.0 μm long. Distance from oral surface to orifice of dorsal esophageal gland 19 and 16 μm . Esophagus 730, 1108, and 1135 μm long. Cervical region with 15, 18, and 24 sensilla on right side; 10, 20, and 22 on left; cervical sensilla 6–14, 5–14, and 6–15 μm long.

Tail tapered on dorsal and ventral surfaces; length 127, 180, and 153 μm ; terminal spike present. Each side of tail with 1 or 2 subdorsal setiform sensilla. Anal body diameter 47, 49, and 54 μm . Caudal glands absent.

Diagnosis. — *Proplatycoma fleurdelis* is most similar to *P. sudafricana*, with the am-

phidial flap of the males of each species having a median lobe and unbranched, dorsal and ventral lobes. The males of the new species differ from those of *P. sudafricana* in that the dorsal and ventral lobes of each amphidial flap are arched with their respective tips pointed dorso- and ventrocaudally so that the overall shape of the amphidial flap resembles the fleur-de-lis; the values for "a" and "b" are 135 ± 10 and 7 ± 0.2 respectively; the distances from the cloacal vent to the posterior and anterior ventromedian supplements are 71 ± 11 and $117 \pm 29 \mu\text{m}$ respectively; the number of setiform subventral supplements are 3 or 4 on the right side of the body and 4 on the left. In *P. sudafricana* the dorsal and ventral branches respectively are sloped dorso- and ventrocaudally so that the overall shape of the amphidial flap resembles an arrowhead; the values of "a" and "b" for the only whole syntype specimen are 174 and 8 respectively; the distances from the cloacal vent to the posterior and anterior ventromedian supplements are $115 \pm 17 \mu\text{m}$ and $185 \pm 23 \mu\text{m}$ respectively; the number of setiform subventral supplements are 2 on the right and 2 on the left sides of the body.

Etymology.—The specific epithet is a noun derived from fleurdelis (middle French) for flower of the lily, which denotes the shape of the amphidial flap.

Discussion.—SEM observations reveal that the base of the amphidial flap in males of *P. fleurdelis* is covered with striated exocuticle, whereas the anterior and dorsal and ventral lobes are without striations and have the same relatively high electron-reflective appearance as the cephalic and cervical sensilla (Fig. 2A). This may be due to the fact that both the sensilla and lobes of the amphidial flaps are extensions of the meso- or endocuticle without the external covering of the exocuticle. Even if this is so, it does not necessarily imply that the branches of the amphidial flaps are derived from sensory sensilla, because, unlike the sensilla, each does not arise from a socket, and there is

no evidence from light microscopy of a nerve passing into them. Although SEM observations have not been made on the amphidial flaps of the males of the other species of *Proplatycoma*, or those of *Platycoma cephalata*, it is assumed that the flaps are homologous. The only difference between them is assumed to be the number, shape and position of the lobes. The amorphous substance at the edge of the amphidial aperture (Fig. 2A) is assumed to be a secretion of the amphidial gland.

The 3 projections around the oral aperture are here interpreted to be microlabia, homologous with the microlabia among members of Leptosomatidae (Hope 1982: 12). Like microlabia, they are set off from the head region by a groove, the microlabial groove, to the base of which is attached the labial retrodilator muscle for the buccal capsule. It was not possible to determine if this muscle is attached to an apodeme, as it is in *Deontostoma* (Hope 1982:4). Also, as in other leptosomatids, there is an orifice of a subventral esophageal gland duct on the mesal surface of each subventral microlabium. However, in other members of Leptosomatidae, the subventral gland duct orifice opens into the mandibular groove on the mesal surface of the microlabium (Hope 1982:8). This groove separates the microlabium from the mandibular ridge, the latter being absent in members of *Proplatycoma*.

The microlabia of *P. fleurdelis* differ from those of Deontostomatinae (Leptosomatidae) in that they are triangular in profile, and tapered to a relatively thin anterior edge (Fig. 2A, B). When the labial retrodilator muscles are relaxed, the microlabia project anteriorly beyond the anterior surface of the head (Fig. 2A, B), but when these muscles are contracted, the buccal cavity is dilated and the microlabia are pulled posteriorly so that they no longer protrude beyond the oral surface (Figs. 2C; 4A; 5A, C). In this condition, microlabia may appear tooth-like, especially when the head is viewed laterally in optical longitudinal section. This inter-

pretation applies to females as well. It is also apparent that complete contraction of the labial retrodilator muscles causes the oral surface of the head to become concave (Figs. 4A; 5C).

An examination of the syntypes of *P. sudafricana* during this study has revealed the presence of microlabia similar to those of *P. fleurdelis* and a complete absence of buccal armament. This is in contrast to the interpretations of Inglis (1966:83) who does not mention the presence of lips or microlabia and states that the buccal cavity has "... three small wholly cuticular onchia on each sector . . ." A head remains on only one of the two syntypes of this species, and in that specimen the microlabia are pulled posteriorly into the buccal cavity. It is concluded that Inglis (1966:83) erroneously identified the microlabia as onchia. The structure and function of the labial region among members of *P. sudafricana* is identical to those among members of *P. fleurdelis*.

It is further postulated that the buccal aperture is surrounded by 3 microlabia, and the buccal cavity is without odontia or onchia in *Proplatycoma curiosa* and *P. africana*, as well as in *Platycoma cephalata*. Thus, in the illustrations of the male heads in the original description of *P. curiosa* and *P. africana*, the microlabia have probably been pulled posteriorly into the buccal capsule (Gerlach 1955:254; 1959:361). The illustration of the male head in the original description of *Platycoma cephalata* is without sufficient detail to allow conclusions concerning the structure of the labial region (Cobb 1894:400). However, in the illustrations of the head of a male of this species published by Bresslau & Schuurmans Stekhoven (1940:table II, figs. 6a, b, c), the tips of the microlabia are level with the oral surface of the head, whereas in the illustrations of a male of the same species published by Platt & Warwick (1983:179), the microlabia extend anterior to the oral surface. Even though the projections are interpreted

in both publications as being teeth, they are undoubtedly microlabia, and the difference in the degree to which the microlabia are extended is attributable to the degree by which the labial retrodilator muscles are contracted. This applies to males and females.

The foregoing are relevant with regard to the diagnoses of *Platycoma* and *Proplatycoma*. Although the former genus was not redefined by Platonova (1976:139), she characterizes *Proplatycoma* as follows:

Nematodes characterized by sharp sexual dimorphism in structure of amphids. In females amphids typically cyathiform but slightly elongated in longitudinal direction. In males anterior end of amphids elongated anteriorly and sometimes with unique processes. Cuticular labial outgrowths absent. Cervical setae may be numerous and may be scattered over the preneural region in groups or singly. Tail wide, terminally acicular. Spicules small, blunt, and reduced. Gubernaculum significantly longer than spicules, curved in the middle, with large blunt dorsal process.

The cuticular labial outgrowths of the above diagnosis are the microlabia of this study. Because it has been demonstrated that specimens of *P. fleurdelis* and *P. sudafricana* do have microlabia, and that microlabia probably occur as well in *P. curiosa* and *P. africana*, *Platycoma* and *Proplatycoma* cannot be separated on the basis of this character.

Platonova's (1976:140) interpretation of the spicula and gubernacula in her diagnosis of *Proplatycoma* is probably based upon an earlier erroneous interpretation by Gerlach (1959:361; 1962:85) who regarded the straight, wedge-shaped structure ventrolateral to the spicula as being the spicula, and the spicula as being the gubernaculum with a caudal apophysis. This interpretation is in contrast to that made by Inglis (1966:83) in his original description of *P. sudafricana* and in the present study of *P. fleurdelis*. As may be seen in Fig. 5B, the structure of the spicu-

la and gubernacula and the number and arrangement of the muscles associated with them are similar to those found in other leptosomatid species, especially in those cases where the gubernaculum possess a caudal apophysis. This interpretation for the structure and arrangement of the spicula and gubernacula corresponds to that made by Platt & Warwick (1983:178) in their redescription of *Platycoma cephalata*. The only difference that exists between males of *Platycoma* and *Proplatycoma* is that in the former the apophyses of the gubernaculum are smaller and directed dorsad, whereas in males of all species of *Proplatycoma* the apophyses are larger and directed caudad.

The remainder of the characteristics given by Platonova (1976:139) for *Proplatycoma* also apply to *Platycoma*. Furthermore, the presence or absence of the cuticular labial outgrowths is the only character by which Platonova (1976:138) separates *Platycoma* and *Proplatycoma* in her key. Therefore, the two genera cannot be distinguished from one another as they are defined by Platonova. In the new definitions given here, the males of the two genera may be distinguished by differences in 1.) the amphidial flap, which is comprised of two, anteriorly-directed, parallel lobes in the case of *Platycoma*, and by a single, anteriorly-directed lobe, with or without dorsal and ventral lobes, in *Proplatycoma*; and 2.) the apophyses of the gubernaculum, which are smaller and dorsally directed in *Platycoma*, and larger and caudally directed in *Proplatycoma*. There are no known characters by which the females of the two genera can be separated.

The subfamily Platycominae is retained, but it is recognized that at present it cannot be defined by a single synapomorphic character. Further study of members of *Platycomopsis* Ditlevsen, 1926 and *Pilosinema* Platonova, 1976 is needed.

The following key to the species of *Platycoma* and *Proplatycoma* is for the identification of males only, because adult females of *P. curiosa* and *P. sudafricana* have

not been described, and females of other species of the genera are not sufficiently well known.

Artificial Key to the Males of the Species of *Platycoma* and *Proplatycoma*

- 1. Each amphidial flap tapered to a single anteriorly directed tip without dorsal and ventral lobes, or with a single, central, pointed lobe, and with dorsal and ventral lobes.
 - Apophysis of gubernaculum caudally directed *Proplatycoma* 2
 - Each amphidial flap with 2 parallel, anteriorly directed lobes; each lobe tapered anteriorly, without dorsal and ventral lobes; apophysis of gubernaculum dorsally directed *Platycoma cephalata* Cobb, 1894
- 2. Amphidial flap with single central and dorsal and ventral lobes 3
 - Amphidial flap tapered to single, anteriorly-directed tip without dorsal and ventral lobes *P. africana* (Gerlach, 1959)
- 3. Dorsal and ventral lobes not branched 4
 - Dorsal and ventral lobes branched *P. curiosa* (Gerlach, 1955)
- 4. Amphidial flap arrowhead-shaped; dorsal and ventral lobes sloped posteriorly; 2 subventral supplements on each side of body *P. sudafricana* Inglis, 1966
 - Amphidial flap with shape of fleur-de-lis; dorsal and ventral lobes arched; 3 or 4 subventral supplements on each side of body *P. fleurdelis*, n. sp.

Distribution and ecology.—The original description of specimens of *Platycoma cephalata* was based on material extracted from sandy sediment collected in the Bay of Naples, Italy (Cobb 1894:399). This species was redescribed by Southern (1914:33) from specimens obtained from a habitat of sand and shells at a depth of 44 m in

Clew Bay, Ireland, and by Bresslau & Schuurmans Stekhoven (1940:13) from specimens, including females, inhabiting *Polygordius*-sediment collected at Helgoland in the North Sea.

Proplatycoma africana was originally collected in coarse, intertidal sand on the Insel Abd el-Kuri, Gulf of Aden (Gerlach 1959:360). Subsequently, it was found in medium sand in the intertidal zone of Fadiffollu Atoll, Maldive Islands (Gerlach 1962:85); coral sand in the littoral and supralittoral zones of Sarso Island, Red Sea (Gerlach 1967a:15; 1967b:20); coarse sand between the low and mean water levels on the coast of India (Bay of Bengal) near Waltair (Rao & Ganapati 1968a:40; 1968b:97); fine to coarse sand between low and mean water levels on the coast of India (Bay of Bengal) near Puri and Konarak, Orissa (Nagabhushanam & Rao 1969:77; Rao 1969:94); medium sand between low and mid-tide levels on Pudimadaka Beach, Andhra Pradesh, India (Rao 1970:112).

Proplatycoma curiosa was originally collected from the intertidal zone on the coast of El Salvador near San Salvador (Gerlach 1955:253), and subsequently found in coarse sand on the coast of Brazil near Victoria and Macaé (Gerlach 1957:463).

Proplatycoma sudafricana is known only from its type habitat and locality, which is sand of the surf zone near Durban, Republic of South Africa (Inglis 1966:83).

In summary, the known distribution of *P. cephalata*, the only species of the genus, is the eastern North Atlantic and Mediterranean Seas, roughly between 40°N (Bay of Naples) and 54°N (Helgoland), and its depth range is to at least 44 m. Members of the genus *Proplatycoma*, on the other hand, range from about 20°N, as in the case of *P. africana* (Rao 1969:89) to almost 30°S, as in *P. sudafricana* (Inglis 1966:83). The known depth distribution for all members of *Proplatycoma* does not extend below the intertidal zone. It appears, therefore, that differences between *Platycoma* and *Proplatycoma* are to be found in geographic

distribution and, possibly, habitat distribution. Members of *Platycoma* are temperate and are known to range into subtidal depths, whereas members of *Proplatycoma* are tropical to subtropical and limited to the intertidal zone; and John Lambshead of the British Museum (Natural History) for the loan of type specimens.

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